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10/727,265	12/03/2003	Donald C. Hutchins	02064-011001	4924

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EXAMINER	
HAN, JASON	

ART UNIT	PAPER NUMBER
2875	

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,265	HUTCHINS, DONALD C.	
	Examiner	Art Unit	
	Jason M Han	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 December 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Figure 4 – transistor drive output port "145". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The term "substantially 10-degree light beam" in Claim 9 is a relative term which renders the claim indefinite. The term "substantially 10-degree light beam" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The above limitation does not render a clear interpretation by the examiner and is indefinite for failure to provide a clear understanding of what is claimed. With what respect is it a 10-degree beam?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 6, 7, 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebens et al. (U.S. Patent 6095661) in view of Petroski (U.S. Patent 6481874).

With regards to Claim 1, Lebens teaches a method and apparatus for an LED flashlight wherein a housing [Figure 1: (110)] includes a battery power source [Figure 1: (120)], a switch [Figure 1: (140)], a gallium nitride LED [Figure 1: (150); Column 6, Line 39], and a voltage converter and current regulator circuit [Figure 1: (130, 160)] electrically connected to the switch and arranged to provide a predetermined voltage and current to the LED when connected to the battery [Abstract].

Lebens does not specifically teach the LED flashlight having a lithium battery source. However, the examiner considers the limitation a matter of design preference as it is commonly held that lithium ion batteries are used in portable devices for their lightness and high energy density. Motivation for such a configuration is corroborated by Lebens: "In one embodiment, battery 120 includes one or more cells which can be any suitable technology such as alkaline dry cells or rechargeable cells. Alternatively, other portable DC electrical power sources can be used as desired in place of battery 120 [Column 7, Lines 33-37]."

Lebens also does not specifically teach the LED flashlight having a heat sink thermally coupled to the LED.

Petroski discloses a heat dissipation system for an LED lamp device wherein an LED [Figure 1: (12)] is thermally coupled to a heat sink [Figure 1: (20)].

It would have been obvious to modify the LED flashlight of Lebens to incorporate the heat dissipation system of Petroski, as commonly held within the art, in order to provide adequate heat dissipation for the LED and thus ensuring a high operating efficiency.

6. With regards to Claim 2, Petroski teaches the heat dissipation system, as cited above, being made of a metal body [Figure 1: (20); Claims 3-4] and contained within the housing [Figure 1: (22)]. Though the housing is not explicitly taught as being a metal body, the examiner considers the reference functionally equivalent whereby heat is transferred from the heat sink to the outer housing via conduction [Claim 6]. It is

obvious that a metal material usually provides a high thermal conductivity and would be suitable as a design choice.

7. With regards to Claim 6, and to the applicant's admission, provided a suitable switch ensuring the device is not operating, a long shelf life is obtained whereby a lithium battery provides a long life of typically at least 10 years and whereby an indium gallium nitride (InGaN) LED has an almost limitless life [Page 5, Lines 18-19].

Lebens teaches a rotary switch [Column 7, Lines 12-14], indium gallium nitride LED [Column 6, Lines 39-40], and the obvious use of a lithium battery in meeting the criteria whereby a long shelf life of at least 10 years is obtained. It should further be noted that the examiner recognizes that the limitation states a gallium nitride LED instead of indium gallium nitride. The examiner assumes that the two have similar characteristics, and that such was the intention of the applicant to state. If not, then the limitation lacks enablement.

8. With regards to Claim 7, Lebens teaches the use of a reflector coupled to an LED housing for collimating the emitted light forwardly therefrom along the optical axis [Column 1, Lines 55-61; Claim 1b].

9. With regards to Claim 11, Lebens teaches the LED being constructed and arranged to emit light waves in the blue spectrum [Column 6, Lines 37-39], which is obvious in using a GaN (gallium nitride) LED.

10. With regards to Claim 13, Lebens teaches a circuit with a power supply and control circuit [Figure 1: (130)] in combination with a feedback control [Figure 1: (160), which regulate the light output level for the LEDs [Column 1, Lines 61-67]. It is obvious

that such a circuit and current regulator may provide 85 percent power efficiency for the device.

11. With regards to Claim 14, Petroski teaches a heat dissipation system, as cited above, wherein an LED is mounted to a printed circuit board [Figure 1: (26)] that has a thermally conductive path coupled to the LED and a metal body of the housing [Claims 1-9].

12. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebens et al. (U.S. Patent 6095661) in view of Petroski (U.S. Patent 6481874) as applied to Claim 1 above, and further in view of Matthews (U.S. Patent 5629105).

Lebens in view of Petroski teach an LED flashlight as cited above.

Neither Lebens nor Petroski specifically teach the flashlight having a switch with threaded means (i.e. rotary switch).

Matthews teaches a flashlight with a rotary switch wherein a transducer mount [Figure 1: (17)] provides threaded means [Figure 1: (48)] for attaching to a battery housing/support [Figure 1: (16, 31)], and whereby a battery source [Figure 1: (11)] is urged to make electrical communication [Figure 1: (18)] in powering a lamp(s) [Figure 1: (12 13)]. Matthew further teaches an insulating disc [Figure 1: (54)] with a protrusion [Figure 1: (56)], which is functionally equivalent to a compressed rubber ring in urging the battery away from the circuit contact [Figure 1: (18)] when the threaded parts are being disengaged.

It would have been obvious to modify the LED flashlight of Lebens with the heat dissipation of Petroski to further incorporate the rotary switch of Matthews, as commonly

held within the art, in order to provide multiple switching characteristics and prevent accidental usage of the flashlight. In addition, motivation for such a configuration is corroborated by Lebens: "A variance of this embodiment uses a thumbwheel, or rotary switch to vary the switching characteristics to produce a variable light output [Column 7, Lines 12-14]."

13. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebens et al. (U.S. Patent 6095661) in view of Petroski (U.S. Patent 6481874) as applied to Claim 7 above, and further in view of Roller (U.S. Patent 6414801).

14. With regards to Claim 8, Lebens in view of Petroski teach an LED flashlight with a collimator optically coupled to the LED as cited above.

Neither Leben nor Petroski teach the collimator having an optical-grade-acrylic-plastic.

Roller teaches an LED assembly having a collimator made of acrylic plastic disposed in front of the LEDs [Column 5, Lines 54-56].

It would have been obvious to modify the LED flashlight of Lebens with the heat dissipation of Petroski to further incorporate the acrylic plastic collimator of Roller in order to optically enhance the emitted light to a desired preference. Such a configuration is commonly held in the art whereby a collimator lens is used to focus a light beam generated by a light source (e.g. LED). It is also obvious that the collimator should be formed of a rigid and durable plastic material to ensure resistance and protection from impact of the lamp.

15. With regards to Claim 9, the examiner considers the above reference functionally equivalent and obvious whereby a collimator is commonly held within the art in focusing a light beam to a desired preference. Such is a preference is a matter of optics. It should further be noted that many flashlights exist wherein a lens is mounted in front of a light source and adjusted to either widen or narrow a beam of light.

16. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lebens et al. (U.S. Patent 6095661) in view of Petroski (U.S. Patent 6481874) and Roller (U.S. Patent 6414801) as applied to Claim 7 above, and further in view of Yoon (U.S. Publication 2003/0189826).

Lebens in view of Petroski and Roller teach an LED flashlight with an acrylic plastic collimator mounted in front of the LED.

Lebens, Petroski, nor Roller specifically teach the collimator integrally coupled to the housing.

Yoon teaches an LED lamp with a collimator [Figure 5A: (260)] integrally coupled to the housing, and which further acts as a protective shield and support for the LED [Figure 5A: (236)].

It would have been obvious to modify the LED flashlight of Lebens with the heat dissipation of Petroski and the acrylic plastic collimator of Roller to further incorporate the integrally coupled collimator, as taught by Yoon, in order to facilitate an easier assembling work by reducing the number of parts thereof [Page 1, Paragraph 15 of Yoon].

17. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lebens et al. (U.S. Patent 6095661) in view of Petroski (U.S. Patent 6481874) as applied to Claim 1 above, and further in view of Parsons et al. (U.S. Patent 6789917).

Lebens in view of Petroski teach an LED flashlight.

Neither Lebens nor Petroski specifically teach the LED having a brightness that can be seen from a distance of over one mile.

Parsons discloses a dual mode rechargeable flashlight wherein a high luminous intensity LED, when energized, produces a high intensity signal that may be visually seen from approximately one mile away [Column 10, Lines 42-48].

It would have been obvious to modify the LED flashlight of Lebens with the heat dissipation of Petroski to further incorporate the high luminous intensity LED of Parsons, so as to ensure a bright and powerful illumination is provided by the flashlight. Such a configuration is a matter of design preference.

18. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebens et al. (U.S. Patent 6095661) in view of Petroski (U.S. Patent 6481874) as applied to Claim 14 above, and further in view of Yoon (U.S. Publication 2003/0189826).

19. With regards to Claim 15, Lebens in view of Petroski teach an LED flashlight, as cited above, with a printed circuit board (PCB) where the LED is mounted on.

Neither Lebens nor Petroski specifically teach the holder for the PCB having multiple passage ways where a wire is passed there through in providing an electrical

communication between the PCB and battery, and whereby the wire is stored within a cavity defined by a housing.

Yoon discloses an LED flashlight with heat discharging means wherein the LED [Figure 2: (236)] is connected to a circuit board [Figure 2: (232)]. Yoon further teaches an inner cavity [Figure 2: (220, 270)] defined by the housing wherein an electrical communication between the circuit board and power source is provided by conductors/connecters [Figure 2: (240, 250)] aligned with multiple passage ways/terminals [Figure 2: (222, 239a)].

It would have been obvious to modify the LED flashlight of Lebens with the heat dissipation of Petroski to further incorporate the heat discharging/electrical communication means of Yoon in providing multiple passage ways, so that greater thermal communication may improve the heat dissipation for the LED. Such a configuration ensures an efficient LED, which is affected by variation in temperature. Please further note Page 1, Paragraph 7 of Yoon, who teaches, "According to a conventional structure of the LED flashlight using one LED, lead wires of the LED are inserted into a lamp holder and extended rearwards. Then, the extended lead wires are bent and electrically connected to a positive or a negative electrode of a battery by a switching operation. However, the conventional LED flashlight requires a great number of parts for connecting the electrodes and the lead wires, so an assembling process thereof is very complicated."

20. With regards to Claim 16, Yoon teaches the heat discharging/electrical communication means, as cited above, having a housing formed of a metal conductive barrel/column [Figure 2: (100); Page 2, Paragraph 31].

21. With regards to Claim 17, Lebens teaches the use of a rotary switch [Column 7, Lines 12-14]. Such a device is commonly held in turning flashlights on/off without the use of any switches/buttons external to a housing.

22. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebens et al. (U.S. Patent 6095661) in view of Petroski (U.S. Patent 6481874) as applied to Claim 1 above, and further in view of Bowman et al. (U.S. Patent 6791283).

23. With regard to Claims 18-19, Lebens in view of Petroski, as cited above, teach an LED flashlight with a voltage converter and current regulator circuit in addition to a circuit board [Figure 1: (26) of Petroski] where the LED is mounted on.

Neither Lebens nor Petroski specifically teach the circuit board having the voltage converter and current regulator circuit.

Bowman teaches an LED illumination module wherein a circuit board [Figure 3B: (302)] is mounted with LEDs [Figure 3B: (102a-n)] and a voltage converter and current regulator [Figures 1-2] circuit. Bowman further teaches that the electronic circuitry may be assembled on one side of the circuit board [Column 8, Line 59 – Column 9, Line 13].

It would have been obvious to modify the LED flashlight of Lebens with the heat dissipation means of Petroski and Yoon to further incorporate the illumination module of Bowman in order to provide a small, compact, and easier assembly. It is also obvious that the assembly would provide electrical connection means between the circuit board

and the battery, which is commonly seen in the art with wires, conductors, connectors, and/or conductive housing.

24. With regards to Claim 20, both Lebens [Figure 2] and Bowman [Figures 1-2] teach a voltage converter and current regulator circuit whereby a certain predetermined voltage is provided for use by the LED(s). The examiner considers the above references functionally equivalent, whereby it is obvious and commonly seen in the art that voltage boosters or step-up circuits are provided in powering LED lamps. Thereby with respect to actual voltage output, the examiner considers such a matter of design preference whereby voltage is dependent on the number of LEDs utilized as well as the illumination intensity desired for said LEDs.

25. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebens et al. (U.S. Patent 6095661) in view of Petroski (U.S. Patent 6481874) as applied to Claim 1 above, and further in view of Kim et al. (U.S. Publication 2004/0140771).

Lebens in view of Petroski teach an LED flashlight with a gallium nitride LED and a lithium battery as cited above.

Neither Lebens nor Petroski teach the LED being one-watt and powered by a three-volt lithium battery.

Kim teaches a flashlight that utilizes a one-watt Luxeon Star LED powered by a three-volt lithium battery [Page 6, Paragraph 79].

The examiner considers the above components/limitations a matter of design preference. Still, it would have been obvious to modify the LED flashlight of Lebens

with the heat dissipation of Petroski to further incorporate the one-watt LED of Kim to provide a powerful illumination, as well as, the three-volt lithium battery in providing a environmentally safe (no mercury, lead, or cadmium), lightweight, and high energy density power source. It is also obvious that given the power supply and control circuit of Lebens, that the three-volt lithium battery could provide at least six hours of illumination for the one-watt gallium nitride LED (similar characteristics to applicant's disclosure and claim).

26. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lebens et al. (U.S. Patent 6095661) in view of Petroski (U.S. Patent 6481874) as applied to Claim 1 above, and further in view of Emile, Jr. et al. (U.S. Patent 4386308).

Lebens in view of Petroski teach an LED flashlight with a voltage converter and current regulator circuit as cited above, and further connected to a switch for turning the flashlight on/off.

Neither Lebens nor Petroski teach the voltage converter and current regulator circuit utilizing a Schottky type diode or an inductor. It should however be noted that the examiner considers the above references functionally equivalent in providing a controlling means for the illumination of the LED by the power source, which is commonly seen within the art.

Emile teaches a voltage converter and current regulator circuit having an inductor [Figure 1: (T1)]; a Schottky type diode [Figure 1: (16)] whose anode side is electrically connected to the inductor; a current sensing resistor [Figure 1: (38)] electrically connected to an LED [Figure 1: (36)]; an output capacitor [Figure 1: (18)] electrically

connected to the anode side of the Schottky type diode; a switching transistor electrically connected to the anode side of the Schottky type diode; and a voltage converter and current regulator controller [Figure 1: (42)] wherein a voltage sense port is electrically connected to the inductor, a current sensing port is electrically connected to the current sensing resistor, and a transistor driving port is electrically connected to the switching transistor.

It would have been obvious to modify the LED flashlight of Lebens with the heat dissipation of Petroski to further incorporate the voltage converter and current regulator circuit of Emile in order to provide the flashlight with a battery charger [see Abstract of Emile].

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references have been further cited to show the state of the art pertinent to the current application:

U.S. Patent 3628243 to Phol et al.; U.S. Patent 4577263 to Maglica;

U.S. Patent 5535230 to Abe; U.S. Patent 5803579 to Turnbull et al.;

U.S. Patent 5842779 to Siebert; U.S. Patent 5882106 to Galli;

U.S. Patent 6150774 to Mueller et al.; U.S. Patent 6332693 to Dove et al.;

U.S. Patent 6366028 to Wener et al.; U.S. Patent 6396137 to Klughart;

U.S. Patent 6464373 to Petrick; U.S. Patent 6541800 to Barnett et al.;

U.S. Patent 6625556 to Galli; U.S. Patent 6633120 to Salam;

U.S. Patent 6793366 to Chun; U.S. Patent 5175528 to Choi et al.;

U.S. Patent 5648714 to Eryou et al.; U.S. Patent 5565839 to Poss;

U.S. Publication 2002/0159270 to Lynam et al.;

U.S. Publication 2003/0107885 to Galli.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M Han whose telephone number is (571) 272-2207. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMH

JOHN ANTHONY WARD
PRIMARY EXAMINER